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CLINICAL LECTURES.

A CLINICAL LECTURE ON THE TREATMENT OF PARALYSIS FOLLOWING DIPHTHERIA.

By N. S. DAVIS, A.M., M.D., LL.D.,
Physician to the Mercy Hospital, Chicago.

GENTLEMEN: You will recognize the patient before you as one to whom your attention was called briefly two weeks since (Jan. 4th), just after his admission to the hospital. He is a young man, aged 19 years, born in this State, resident of an interior town, and by occupation a farmer. He is physically well developed, and previous to the first of October last had enjoyed good health. In the early part of that month he was attacked with diphtheria, which affected his fauces, glands of the neck, and Schneiderian membrane severely for two weeks, after which he recovered so fully that he commenced doing some work during the second week in November, although his voice was weak and somewhat nasal. About the middle of November, after having been exposed to cold while husking corn in the field, he had complete loss of voice, and almost entire loss of vision, with general muscular weakness. In about two weeks he had recovered his voice and vision, though not perfectly, for even up to the time of his admission into the hospital, on the 3d of January, his pupils were larger than natural, and small objects appeared dim or indistinct. But when his voice and vision had nearly recovered, the weakness of his lower extremities began to increase, and

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by the middle of December he was unable to walk, or even stand on his feet without support. This continued until he was brought to the hospital, it having been necessary for assistants to carry him from his room to the carriage when he left home. At the time of his admission here, you will remember that his look was moderately anæmic; expression of countenance sad; pupils of the eyes large and responding to changes of light less readily than natural; tongue clean; pulse 90 per minute and soft; skin soft, and temperature 36.5° cent.; digestive organs apparently healthy, and secretions natural. His speech and deglutition appeared good; slight dimness of vision; occasional feeling of numbness in the fingers, but the use of the muscles of the arms and trunk of the body apparently unimpaired; but his lower extremities were still so far paralyzed that he could stand, or attempt to walk, only by the aid of assistants supporting him. He suffered no pain, and but slight alterations of sensibility anywhere.

I have thus recalled your attention to the history and principal symptoms of this case, not only for the purpose of enabling you to appreciate more clearly the progress of the patient during the two weeks since his admission here, but also for the aid it will give us in considering more fully the pathology and treatment of the class of cases to which this belongs. That the form of paralysis represented by the case before you, frequently follows as the sequel of diphtheria, is well known. In a large majority of the cases the paralysis is limited to the muscles of the fauces, causing more or less difficulty of speech and deglutition. In the slighter attacks the only marked symptoms will be unnatural slowness of speech, with a decided nasal sound to the voice, and passing of the food and drink into the posterior nares, and sometimes into the larynx unless special care is exercised in swallowing. In severer cases there is more complete aphonia, and more rarely entire suspension of deglutition. During the prevalence of an epidemic of diphtheria in this city many years since I was called in consultation to a case of this kind. The patient, a boy, aged ten years, after convalescing from an attack of the diphtheria of ordinary severity, in eight or nine days began to exhibit signs of partial paralysis of the muscles of the fauces and adjacent parts. These evidences of paralysis increased until voice and deglutition were both entirely suspended; and for more than two weeks he was nourished solely by introducing milk and other nutriment into the stomach through a stomach-tube.

Next in frequency to the muscles of the fauces and pharynx we find those of the eye affected with paralysis, generally causing dilatation of the pupil and such imperfect adjustment, as to impair or suspend vision. The muscles of the upper and lower extremities suffer next in frequency; and in some patients, like the one before you, these several parts are attacked in succession, somewhat resembling the migrating character of articular rheumatism. In the great majority of cases this form of paralysis is limited to the muscles of voluntary motion, but in some cases it has extended to those of respiration and circulation, thereby impairing these functions to such a degree as to cause the death of the patient. Death may result directly, from the inability of the respiratory muscles to perform the mechanical work of respiration, or from paralysis of the heart; but in a larger number of cases death is reached, indirectly, from the passage of particles of food or drink into the larynx and bronchial tubes, inducing either suffocation or fatal broncho-pneumonia.

Oertel states the ratio of deaths in paralysis following diphtheria to be from eight to ten per cent. Of seventy-seven cases collected by Dr. Reynolds nine proved fatal. If I were to be guided by my own observation I should say that the prognosis was, in all recent cases, favourable. During the twenty-nine years that I have practised in this city several marked epidemics of diphtheria have prevailed in the community, and in each, cases of paralysis as sequalæ of the acute disease, of varying degrees of severity, came under my care, but up to this date I have not seen a case that terminated fatally,

either in the hospital or in private practice. In most of the cases, the first indications of paralytic trouble were observable in from one to two weeks after the disappearance of the entire symptoms of diphtheria. But in some instances they were not manifest until two or three months after convalescence from the original disease. The paralytic symptoms are generally slight at first, and increase in severity during the first week, remain about stationary a few days, and then decline. When it is manifested in only one set of muscles, it often disappears in from two to three weeks. When it affects the muscles of different parts in succession, the trouble may be protracted through several months.

Concerning the nature or special pathology of this form of paralysis, medical writers give us but little information. Most of them regard the diphtheria as caused by a specific poison, capable of not only developing local inflammatory action with a peculiar membranous exudation, but also effecting changes in the blood and all the phenomena of a general disease. Probably a large majority of English and American physicians regard the poison as acting primarily on the blood and properties of the tissues, developing a primary general disease, and secondary local inflammations in the fauces, glands of the neck, etc.; while Oertel, Buhl, and others regard the essential cause as a species of organic germ, called *micrococcus*, which first impinges on the surface of the mucous membrane of the fauces, or other parts of the body, and induces primarily a specific local inflammation and exudation, in which the germs are greatly multiplied, and from which they penetrate the tissues and the blood in such numbers as to cause secondary general disturbance of more or less severity. (See chapter on diphtheria, in Ziemssen's *Cyclopedia of Practical Medicine*, vol. i.)

But during the last few years, microscopists have so generally found some variety of organic germs present in the blood, and morbid products of almost every disease, that we may very properly doubt whether they are not *consequences* of any and all morbid processes of a degenerative character, instead of causes. My own microscopic studies have given me a strong inclination to regard this latter view as correct. Notwithstanding the diversity of views entertained by writers in regard to the nature of the essential cause or causes of diphtheria, nearly all agree that the paralysis, sometimes following it, results from the *toxæmic* effect of the poison on the nervous and muscular structures of the paralyzed parts. A few, looking to such cases as involve only the muscles of the fauces and pharynx, have attributed the loss or weakness of the muscular action to the direct effects of the local diphtheritic inflammation on the nerves of the part. If this view were correct, the paralysis ought to be somewhat in proportion to the severity of the preceding inflammation, and should be limited entirely to the muscles of such parts as had been inflamed, neither of which is found to be in accordance with the well-known clinical facts. On the contrary, cases of paralysis of a severe character have followed very mild attacks of diphtheria, and so far from being limited to the parts involved in the local inflammation, it may affect the muscles of any part of the body and extremities as you see in the patient before you. Without detaining you with a further allusion to the opinions of writers, I will simply state the results of my own studies and clinical experience. That diphtheria is a general febrile disease, produced by a cause or causes, that act primarily upon the blood and properties of the tissues, indicated by general disturbance of the functions of the system, and subsequently developing special local inflammations, I have no doubt. To a careful and experienced observer the order of sequence, in the development of symptoms and morbid changes, is too plain to be mistaken. In this respect the local inflammations and diphtheritic exudations bear the same relation to the general disease that the inflammations in the fauces and glands of the neck do in scarlet fever, and the morbid changes in the glands of the ilium and mesentery in typhoid fever. To understand clearly my views of the *modus*

operandi of the causes of diphtheria, and of the pathology of the paralytic affections following it, you must keep in mind the fact that all organized living matter possesses two elementary properties, namely, a susceptibility or capability of receiving an impression, and an affinity which regulates the movements of atoms caused by the impressions made.

It is this elementary property, which I call susceptibility, that enables the muscular fibre to respond to the electric current or the nervous force; the secreting cell to the presence of arterial blood; each organic cell or atom to the presence of the proper material for its own nourishment; and the nerve cell or fibre to the presence of its appropriate excitant; while the special elementary affinity guides the movement of each atom to its appropriate place in the processes of nutrition, disintegration, secretion, etc. Hence, so long as the various living structures possess these properties in their natural degree, and are supplied with blood natural in quantity, in the relative proportion and quality of its constituents; free from extraneous toxæmic or hurtful ingredients, and moving in the natural degree of velocity, all the resulting actions or processes will be natural, and what we call health will be preserved. But if any one of these conditions fail or become notably altered in any direction, morbid or unnatural results necessarily follow.

In diphtheria it is evident that the blood has either imbibed a specific morbid material, or undergone some change in the quality of its constituents (most likely the former), by which it makes a decidedly unnatural impression upon the properties of the tissues, impairing the sensibility of the vaso-motor nerves, and thereby altering the movement of blood in the capillary vascular system, perverting the play of vital affinity by which secretion and nutrition are disturbed and generally retarded, and giving rise to those appreciable symptoms of general disturbance that are presented in the first stage of the disease.

The nature of the morbid material or change in the blood is such that it not only disturbs the elementary properties and functions of the system generally, but it exerts a special irritative influence on the mucous membrane of the fauces, and sometimes other parts, creating in them an inflammation of an asthenic or aplastic character, as shown by the persistent tendency of all its products to degeneration, whether in the form of membranous exudations upon the surface, or into the parenchyma of the glandular and areolar structures.

This view is fully corroborated by the microscopic observations, as detailed by Oertel and others, showing not only the early appearance and great abundance of organic germs in the form of micrococci, bacteria, etc., but the coincident presence of pus corpuscles and other products of retrograde metamorphosis, both in the exudations upon inflamed mucous membranes and in the parenchyma of inflamed structures.

And even without the aid of the microscope, the same aplastic and degenerative character of the morbid processes in diphtheria are abundantly shown by the early breaking up and disappearance of the membranous exudations; the offensive odour; the ready establishment of ulcerations and gangrene; and the general weakness of the muscular system. The last-mentioned condition is particularly noticeable, both during the progress of the disease and through the convalescence, and quite as much in the heart and muscles for involuntary motion, as in those under the control of the will. All these circumstances show that there is something in the nature of the morbid actions constituting this disease, that leaves the properties of the nervous and muscular structures more impaired than after most of the other acute febrile affections; and hence in a condition highly favourable for the supervention of paralysis at any time during the convalescence. In studying the nature of the paralysis itself, you must remember that impairment and loss of muscular power in any particular muscle or set of muscles may be caused by either of the following morbid conditions: 1st. Disease in the central part of the nervous system involving the origin of the nerves supplying the

paralyzed part. 2d. Disease of some part of the nervous cord between the centre from which it emanates and its peripheral distribution. 3d. Disease of the peripheral extremity of the nerves in the paralyzed part. And 4th. Loss of susceptibility, or what Haller called *irritability*, in the muscular structure itself. The condition last named is deserving of more attention than it has received from most of those who have given special attention to the study of paralytic affections.

The members of our profession have come to look so directly to the nervous structures for an explanation of all changes in sensibility and motor power, that the existence of a property or susceptibility inherent in muscular or any other structures, by which it is capable of being impressed or acted upon by exterior influences has been apparently overlooked. Yet no physiological fact is more easily demonstrated than that such a property exists, not only in the atoms constituting muscular, but also those of all other living structures. Indeed without such a susceptibility in the muscular structures, no amount of nerve-force or intensity of electric currents would elicit the slightest muscular action or motion. This property can be impaired or suspended, by retarding or arresting the supply of arterial blood, by retarding or suspending the molecular changes constituting nutrition and disintegration, and by contact with certain toxæmic agents, such as carbonic and hydrocyanic acids and other sedative poisons. If, while keeping these physiological facts in mind, we return to the study of the morbid phenomena preceding and accompanying the existence of diphtheritic paralysis, we shall be compelled to look to the muscular structures involved rather than to any part of the nervous centres for the essential seat of the disease.

The decidedly asthenic character of the primary disease; the aplastic and degenerative quality of all its morbid products and changes, leaving the processes of nutrition and metamorphosis enfeebled during the convalescence; the gradual manner in which the paralysis supervenes; the coincident impairment of the electro-excitability of the affected muscles; the tendency to affect the muscles of different parts of the system in succession, those of one part recovering, while those of another are increasing, while the nerves supplying the muscles thus successively attacked have no common or closely approximative origin in the cerebro-spinal centres; and the absence generally of all direct symptoms of cerebral or spinal disease coincident with the failure of muscular action, all point, in my estimation, to an impairment or loss of susceptibility and contractility in the muscular structures involved. This impairment of the primary property and function of the muscular structures may depend on an inadequate supply of arterial blood through feebleness of the capillary circulation in the part; or on the toxæmic influence of the products of the retrograde metamorphosis of such exudations as had taken place in the structures during the progress of the primary diphtheritic disease, or on both combined. I might sustain these views by other facts, particularly those derived from microscopic examinations of the nervous and muscular structures in cases terminating fatally, as described by Oertel, Buhl, and others, but the clinic hour is too far advanced, and I must hasten to a review of the treatment. If the foregoing views are correct, the principles that should govern us in the management of this variety of paralysis are obvious and capable of being stated in a few words. First as a means of preventing the supervention of paralysis, patients during convalescence from diphtheria should be very careful in the taking of exercise, not to carry it to the extent of causing weariness, but should, as far as possible, make their exercise passive by riding until their natural feeling of strength and vigour is well restored. They should, as far as possible, occupy rooms that are well ventilated, dry, and cleanly; and their diet should be plain, nutritious, and readily digestible. They should endeavour to avoid all sudden exposures to cold and damp air, and still more to confinement in close, ill-ventilated, and over-heated rooms either day or night.

A judicious observance of these rules, during the early part of the convalescence from diphtheria, would prevent a large proportion of the cases of paralysis that might otherwise occur. The same rules apply to the management of cases after paralysis has become manifest, only that the attempts at exercise should be more restricted, and the patient kept a large part of the time at rest.

Second, the views I have presented concerning the nature of the paralytic affection, suggests the use of such therapeutic agents as are capable of promoting the processes of assimilation and nutrition, and of increasing the susceptibility of the nervous and muscular structures. Among the agents best calculated to promote the former are good air, easily digestible food, hypophosphites, mineral acids, and bitter tonics. For increasing the latter we have no more efficient agents than some of the preparations of iron, strychnia, electricity, etc. When your attention was first directed to the patient before you, two weeks since, I directed him the following prescriptions:—

℞. Strychniæ sulph. 0.066 grm.
Acid. nit. 4.000 grms.
Aquæ 128.000 "
Mix.

Take five grammes (one teaspoonful) before each meal-time in a tablespoonful of sweetened water.

℞. Ext. malt 128 grms.
Comp. syrup hypophosphites 64 "
Mix.

Take eight grammes (one dessertspoonful) after each meal-time.

He was supplied with good bread, milk, tenderly-cooked meat and vegetables, as much, at the regular meal-times, as his appetite required. I prohibited the use of wine, beer, and all alcoholic remedies, because in even small quantities the alcohol lessens the oxygenation and decarbonization of the blood; impairs the susceptibility of both nervous and muscular structures; and favours fatty degeneration in the metamorphic changes constantly taking place in the tissues, all of which are decidedly contraindicated by the nature of the disease we had to treat. Two days later there was added to his treatment gentle electro-magnetic currents for a few minutes every second day. He has steadily pursued the treatment thus directed until the present time, without any material change. And now, as he gets up readily from his chair, and walks steadily across the room without help, you see that he has recovered a very good use of his limbs, and is much improved in all respects. I shall now let him restrict the use of the strychnia and nitric acid to one dose every morning, but continue the ext. malt and hypophosphites as before; and if he is reasonably judicious in regard to his attempts to exercise, and cautious about undue exposures to sudden atmospheric changes, in two weeks more he will have so fully recovered that he will need no further use of medicines. In treating other cases of this form of disease, I have in most instances given the strychnia in combination with the citrate of iron, instead of with the nitric acid. But, gentlemen, if you apprehend clearly the objects to be accomplished in the treatment of any given case, you will generally find little difficulty in selecting proper remedies for their accomplishment.

HOSPITAL NOTES AND GLEANINGS.

Notes of two Cases of Abscess bursting into the Lung.

Case 1. *Dysentery; Hepatic Abscess perforating the Diaphragm; Recovery.*—J. W. Seaman, aged 38, was admitted into the Northern Hospital under the care of Dr. Caton on July 18, 1877. Patient is pale and emaciated. He has suffered from dysentery for some weeks, and now passes eight or ten loose slimy stools per day. He has much tenemus. Liver dulness considerably increased upwards; tenderness on pressure, and some degree of pain referred to the liver; pain increased if he lies on the right side. He has no cough or dyspnœa. Throughout his illness he has been free from chest symptoms. Temperature 98.4°. Milk diet was ordered, a mixture of ipecacuanha, bismuth and morphia, and morphia suppositories.

July 21. Pain in region of liver is

worse. To-day a severe and sudden attack of dyspnœa came on, with much coughing, and patient expectorated about four ounces of pus, after which the breathing became easier. Coarse râles heard in the right lung; no friction. Pulse now and during the following six days varied from 100 to 110; temperature from 98.4° to 101.6°. No material change was made in the treatment. A firm broad flannel bandage was applied round the lower part of the thorax. The patient was told to lie as still as possible in bed, and to avoid violent coughing as far as he could, in order to diminish the risk of breaking down the adhesions believed to have formed between the liver, diaphragm, and lung.

During the week succeeding July 26 his condition gradually improved.

28*th*. Liver dulness has diminished. There is now but little pain unless he attempts to turn on the right side. A small amount of pus still expectorated. Temperature, morning 99°, evening 101.6°; pulse 107. Complains of weakness.

30*th*. A cutting pain complained of below the angle of the right scapula. Friction heard at the right base. Mustard poultices applied. Temperature 99°.

31*st*. Friction louder. Temperature 99.4°. Cough ceasing.

August 2. Friction becoming indistinct. Pain only felt on coughing or taking a deep breath.

3*d*. Friction almost inaudible. Still some degree of dysenteric diarrhœa, but in every other respect patient is improving rapidly.

14*th*. Powder of ipecacuanha gr. x, and opium gr. j, given twice daily. The diarrhœa now subsided, and the patient was allowed to get up. His diet was increased; he gained flesh and strength rapidly, and he was discharged cured on September 6.

Case 2. *Axillary Abscess perforating the Thoracic Wall; Recovery.*—Annie L., aged eight, was admitted into the Liverpool Children's Infirmary, suffering from severe cough.

Previous History.—A fortnight before the patient's admission a painful swelling appeared in the left axilla, and subsequently increased to the size of a small orange. It was believed to be an abscess, and poultices were applied, but it showed no disposition to point outwardly. The child at this time was in good general health, had no sign of chest disease, and was perfectly free from cough. About three days prior to admission she began to complain of pain in the left side of the chest when taking a long breath, and a slight cough appeared. Next day a sudden attack of dyspnœa occurred, followed by severe coughing; a quantity of yellow frothy fluid was expectorated.

On admission, I found a soft fluctuating tumour about the size of a small orange in the left axilla. The swelling could be seen and felt to contract coincidently with forcible inspiration, and to expand with forcible expiration; and when the child coughed, a strong impulse was transmitted to the hand. When the stethoscope was applied to the tumour, a bubbling, gurgling sound of extraordinary loudness was heard coinciding with the respiratory movements. The left lung, especially at its upper part, was full of coarse râles. No friction was discoverable. The child coughed occasionally, bringing up a frothy yellow fluid, which the microscope showed to be pus. Her strength and appetite continued good, and she had no fever. The diagnosis seemed clear: an axillary abscess had pointed towards the pleura; inflammation, adhesion, and perforation of the two pleuræ followed, and the pus had found its way into the lungs. The treatment adopted was very simple. Danger of two kinds threatened—the adhesions might yield, and allow air and pus to enter the pleural cavity; also, the violent rush of air into the sac of the abscess during coughing was likely to produce general emphysema. It was evident that the sac must be emptied, and its communication with the air-passage closed as soon as possible. Placing the hand over the abscess, I slowly and gradually pressed out all the air and pus it contained into the lung, causing in the process violent coughing and some embarrassment of respiration. Probably two or three teaspoonfuls of pus were expectorated at the time. A firm and suitably shaped pad

was then placed over the abscess so as to keep its wall in apposition, and this was carefully secured in its place by a bandage. Rest, a simple milk diet, and a gentle expectorant were ordered. Two days later, on removing the pad, only a small amount of air entered the sac during coughing, and but slight bubbling could be heard. The expectoration had diminished. Four days later no evidence of a cavity could be found on removing the pad, and the râles had almost disappeared from the lung; no friction was heard at any time. In a few days the child was perfectly well.

Remarks.—Cases of hepatic abscess discharging by way of the air-passages are by no means rare. During the last twenty-five years a considerable number have been recorded in the journals. Next to a direct outlet through the abdominal walls this appears to be the safest direction the escaping pus can take; still, it is attended by great risk: the adhesions frequently give away, and the contents of the abscess are poured into the pleural or peritoneal cavity. I have recently had a case in which an abscess, situated in the posterior part of the liver, pointed towards the diaphragm; adhesions were found, and the matter had burrowed through the diaphragm so far as to set up adhesive inflammation between the two layers of the pleura, when, unhappily, the lymph gluing together the liver and diaphragm gave way, and a quart of pus was poured into the peritoneal cavity, causing speedy death. The risk may perhaps be somewhat diminished by making the patient wear a firm broad binder round the waist, and by enjoining the most absolute rest. If the abscess can be diagnosed sufficiently early, there can be no doubt that its contents should be removed by aspiration. The second case narrated is one of great rarity. I have been unable to find a parallel to it in the journals.—*Med. Times and Gaz.*, Oct. 5, 1878.

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Cystic Adenoma of Breast treated successfully by Incision and Antiseptic Dressing.—Mary P., aged forty-one, single, a seamstress, was admitted to Mr. Wyer's ward in the Queen's Hospital, Birmingham, on July 1st, 1878. No history of tumour in the family. She has had no illness or injury to the breast, and is in good health. About three months ago she perceived a swelling in her left breast, which she thought subsided after a time, and then reappeared, and continued to grow until it became as large as an orange. No redness, pain, or œdema, and the skin freely movable over the tumour; no retraction of nipple; axillary glands normal. There being a distinct, though deep, sense of fluctuation in the tumour, Mr. West introduced a grooved needle, when an ounce of thin serous-looking fluid escaped, which, on examination, was found to contain blood, fat, albumen, cholesterin, and some large irregular-shaped cells having the appearance of ground glass. The same evening the breast became painful. The pulse was 120, and the temperature rose to 101°. On the following day the breast was very painful, indurated, and swollen, and had a reddish-blush over it; sense of fluctuation very evident. Temperature 100°; pulse 108.

Three days after the first puncture, the redness, swelling, and pain having increased, two free incisions were made in the summit and base of the tumour respectively, under the antiseptic spray; six or seven ounces of pus were evacuated, the cavity well washed out with carbolized water, and a drainage tube introduced from one opening to the other. The breast was dressed antiseptically for a week after the operation; discharge was copious, but sweet; and no constitutional disturbance of any kind ensued. After the first week the openings were injected with solution of sulphate of copper (five grammes to the ounce), and the antiseptic dressing only applied every other day. At the end of a fortnight the swelling had completely gone down, discharge had ceased, and there was scarcely a trace of induration about the breast. She was discharged from the hospital cured on July 22d, the breast being strapped in the ordinary manner so as to keep up steady and equable pressure on it for some weeks.

Remarks.—This case serves to illustrate the good effects of free incision in cystic

adenoma of the breast, and also the freedom from danger with which such operations can be undertaken when Lister's method is employed. No constitutional excitement of any kind followed the free opening of the cyst in this case when the carbolic spray was used and the breast dressed antiseptically, while simple puncture with a grooved needle made without those precautions was followed by violent inflammation of the cyst, so that the serous contents in three days became converted into pus, and great febrile disturbance was set up, as shown by the pulse rising to 120, and the temperature to 101°. The use of sulphate of copper injections to set up adhesive inflammation in the interior of the cyst, so as to agglutinate its walls, was attended by no constitutional excitement, as, at the same time, the antiseptic dressing was employed.—*Lancet*, Sept. 21, 1878.

MEDICAL NEWS.

DOMESTIC INTELLIGENCE.

Investigating the Yellow Fever Epidemic.—Acting upon the advice of members of the American Public Health Association, Dr. J. M. Woodworth, Surgeon-General of the Marine-Hospital Service, has organized a commission to gather and record all important facts relating to the commencement and spread of the present epidemic of yellow fever, with the view of establishing truths upon which the theory and practice of prevention of future epidemics may rest.

The gentlemen composing the commission—Prof. Bemiss, of New Orleans, Dr. Cochran, of Mobile, and Prof. Howard, of Baltimore—have already commenced their work in New Orleans, and will visit the principal places in which the yellow fever has prevailed. Col. Hardee has been added to the commission as sanitary engineer. The cordial co-operation of all who have facts to communicate bearing upon the subject under investigation, is earnestly solicited for the commission by Surgeon-General Woodworth. A preliminary report of the facts, gathered up to the 19th day of November next, will be presented to the American Public Health Association, which will convene on that day in the city of Richmond, to discuss the report, and to advise the best course to be pursued in concluding the labours of the commission. It is not intended to terminate the investigation on the 19th of November, but it is desirable that those interested in public hygiene, in all parts of our country, should meet in council prior to the assembling of Congress, as it is generally believed that legislative action will be promptly taken in reference to preventing future epidemics. The agitation of the public mind upon this important subject is proper and commendable, but herein lies the peril of hasty or not fully matured legislation, and it is hoped that by the action proposed, Congress may have the benefit of the representative men of sanitary science.

Treatment of Yellow Fever.—Dr. S. M. Bemiss, of New Orleans, thus describes (*Louisville Med. News*, Oct. 12, 1878) his mode of treatment of yellow fever. He says there is no known treatment, either antidotal or eliminative, which cures. If it is allowable to say that any disease has a "tendency to recover," the remark is certainly applicable to yellow fever. The very moment the paroxysm ends, attempts at convalescence are set up even in the worst cases, while in the mildest, convalescence dates from the time the fever ends. It is therefore true that while a certain proportion of cases are no more possible of cure than it is possible to arrest the march of a tornado, the *great majority* will recover if the surrounding conditions and the management are at all favourable to recovery.

I begin treatment with a cathartic—calomel, if the tongue is much furred, or, if an irritable stomach renders its selection necessary, castor oil, if only the removal of feces is desired. The salines are too irregular in their action. As the attacks of yellow fever are often very sudden, they sometimes catch a patient with a full stomach. An emetic under these circumstances is a smaller evil than to begin treatment with a burdened digestive system. A warm foot-bath given under the bed-clothes is very important

as an early step in treatment. This seldom fails to induce very abundant diaphoresis, which should be promoted by adapting the covering to circumstances of temperature, of atmosphere, or the patient's condition as to surface. I do not for a moment doubt the ordinary hypothesis that sweating removes yellow-fever poison, but it does not follow that sweating alone is a cure; on the contrary, too much urging of the sweat-glands is often fatal, either by exhausting the patient or by disturbing the balance of functional integrity; in other words, damaging some other function, more particularly that of the kidneys. After catharsis I generally give by enema, in one or two ounces of flaxseed emulsion, fifteen to twenty grains quinia in solution. If much pain be present, ten drops of Battey's solution are added. After this no more medication except for symptoms.

The patient must be kept *absolutely* recumbent, not even permitted to raise his head from the pillow; cold drinks (lemonade, Apollinaris, Seltzer, Bethesda, or plain ice-water) in quantities not over one or two tablespoonfuls every half hour to an hour. No food should be given till late in third day, unless the patient is a child, previously an invalid, or unless a weakened and hurried pulse admonishes us that the fast cannot be longer endured. The first food should be of a liquid character; thin chicken water, barley water, iced milk diluted with a little lime-water, beef-tea, etc. Should the patient desire stimulants, they may be given in form most acceptable to him, whether fever be present or not. The effervescing drinks are generally preferred, either champagne, brewer's beer, or the porters. When fever returns after the paroxysm is over, it should be met by cold or tepid sponging of the surface. For this purpose water dashed with whiskey, vinegar, bay rum, cologne, or Raspail's sedative may be used. Never try to break the second or third paroxysms of fever by foot-baths or attempts at sweating. Cold sponging is beneficial for these returns of fever, but cold douching, or Kibbe's method, is apt to kill the patient by perturbing him to too great a degree. If necessary to free the bowels during the calm stage, it is better to do so by rectal injection. No visiting, or even unnecessary talking or noise, should be permitted in the patient's room. Vomiting should be met with epispastics, blisters, ice, and very *small* doses of opium in combination with cherry-laurel water and bicarbonate of soda; hemorrhages with ergot.

Trained nurses are very necessary to success.

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Abstract of Sanitary Reports received up to Oct. 26th, 1878, under the National Quarantine Act.

New Orleans.—During the week ending October 25th, there were 699 cases of yellow fever and 229 deaths. Total cases 12,881, deaths 3864.

Plaquemine, La.—Total cases of yellow fever to Oct. 20th, 1159. Total deaths 125.

Baton Rouge, La.—For the past week there were 170 cases of yellow fever and 15 deaths. Total cases 2340, deaths 144.

Morgan City, La.—There were 7 deaths from yellow fever during the past week. Total cases to date 510, deaths 94.

Port Hudson, La.—Report to Oct. 20th gives total cases of yellow fever 75, total deaths 10, including four resident physicians. The first case of the fever occurred Sept. 9th, first death Sept. 13th.

Mobile, Ala.—There were 71 new cases of yellow fever and 17 deaths during the week ending October 25th. Total cases 164, deaths 49.

Ocean Springs, Miss.—No deaths from yellow fever during the week ended at noon, October 25th. There were 8 new cases in Ocean Springs, and 9 cases in the country not previously reported. Total cases 145, deaths 29.

Pass Christian, Miss.—For the past week there were 44 cases of yellow fever and 5 deaths. Total cases 170, deaths 18.

Water Valley, Miss.—Total cases of yellow fever to yesterday evening 146, total deaths 60. Six new cases Oct. 25th.

Port Gibson, Miss.—The yellow fever has spread into the country. As near as could be ascertained about 30 deaths occurred in the past week.

Hudson, La.—To Oct. 18th there had been 75 cases of yellow fever and 18 deaths.

Germantown, Tenn.—The first case of yellow fever occurred August 20th. First case among inhabitants August 25th. Total cases to noon October 15th 65, deaths 36.

Memphis, Tenn.—For the week ended the evening of the 24th inst. there were 50 deaths from yellow fever. Total deaths 2942.

Brownsville, Tenn.—During the week ended yesterday evening there were 16 deaths. Total cases 560, deaths 152.

Chattanooga, Tenn.—For the past week there were 80 cases of yellow fever and 23 deaths. Of these 51 cases and 9 deaths were among coloured people.

St. Louis, Mo.—At quarantine during the past week 3 residents were admitted and died of yellow fever. One patient previously reported also died of yellow fever.

Cairo, Ill.—For the two weeks ending October 25th, there were 44 cases of yellow fever, and 6 doubtful cases. Deaths for the same period 16. Total cases 75, deaths 41.

Louisville, Ky.—There were 4 new cases of yellow fever for the week ending October 25th, and 7 deaths. Total cases 131, deaths 61, including refugees.

Decatur, Ala.—During the week ending October 25th there were 23 new cases of yellow fever and 13 deaths. Total cases 178, deaths 40.

Biloxi, Miss.—Up to Oct. 17th there were 295 cases of yellow fever and 40 deaths.

Greenville, Miss.—To noon of Oct 11th there were 301 deaths from yellow fever, 21 of which were in the country outside of Greenville.

No cases of yellow fever or deaths during the past week at *Port Eads, La.*, *South West Pass, La.*, and *Key West, Fla.*

Havana, Cuba.—23 deaths from yellow fever and one from smallpox for the week ending Oct. 19th.

Hernando, Miss.—During the week ending October 25th there were 32 cases of yellow fever and 7 deaths. Total cases 165, deaths 63.

No reports received from the following places where yellow fever exists: Vicksburg, Miss., Holly Springs, Miss., Canton, Miss., Grenada, Miss., Bay St. Louis, Miss., Friar's Point, Miss., Mississippi City, Miss., Spring Hill, Miss., Crystal Springs, Miss., Hickman, Ky., Grand Junction, Tenn., Paris, Tenn.

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Typhoid Fever conveyed by Milk.—Epidemics of typhoid fever generated by milk contaminated, through the water supply, by the excreta of typhoid fever cases being placed into such proximity as to drain into the latter, are unfortunately of such frequent occurrence that the Parliament of Great Britain has, in the Contagious Diseases (Animals) Act, given authority to the Privy Council to make such rules and orders as may be deemed proper for the registration and inspection of dairies and all that pertains to them, and to prescribe the necessary precautions to be taken for protecting milk against infection or contamination, and to authorize the carrying out of the same by the local authorities.

The importance of this matter in the interests of Preventive Medicine cannot be overestimated, and we are gratified to learn that at least one institution in this country in which a large number of children are collected, and consequently in which a large quantity of milk is consumed (The Pennsylvania Institution for the Deaf and Dumb), has had made a sanitary inspection of the dairy from which its milk supply is received, so as to guard its inmates against this possible and preventible source of epidemic disease. We cite this example because we think it should be followed by all kindred institutions. At this very moment there exists an epidemic of typhoid, from contamination of the milk supply, at Bristol, England. In the early part of the year there existed others at Manchester, Ascot, and at Glasgow. The history of the latter has been written and we learn that 163 cases were traced to infection from this source. Within the last few years there have been a number of similar epidemics in Great Britain. Yet, all these cases of sickness and death, and the

long list of woes therein entailed, were preventible by timely sanitary inspection of the dairy farms from which the milk supplies were received. This the British Government now looks forward to having systematically done.

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American Public Health Association.—The sixth annual meeting of this association will be held in the city of Richmond, Va., from the 19th to the 22d of November to consider the reports and propositions offered by its members and others relating to the epidemic and the sanitary measures for preventing the recurrence of such calamities. The first days of the sessions will be devoted to the report and evidence submitted by the yellow fever commission under the Surgeon General of the U. S. Marine Hospital Service, as that important work has been undertaken with the advice and co-operation of members of this association.

The results of the labours of that commission and of the deliberations of this meeting will, it is believed, be of very great importance to the nation, while they will promote needed legislation and determine most essential reforms in public health government. Contributions of information and study relating to yellow fever and the epidemics of the present year are solicited from all quarters; a general invitation is extended to all interested in sanitary science to attend the meeting and participate in its work.

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Personal.—The *Lancet* (Oct. 5) announces that Mr. Callender of St. Bartholomew's Hospital will visit this country early in December with the intention of seeing the practice and teaching arrangements of the prominent surgeons of the United States.

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Obituary Record.—Died, at Philadelphia, on the 7th of September, of cancer of the kidney, Washington Light Atlee, M.D., aged seventy years. Dr. Atlee was widely known as a successful ovariotomist, and author of a work on Ovarian Tumours.

FOREIGN INTELLIGENCE.

Spontaneous Fracture of both Thighs.—Dr. Nedopil, clinical assistant of Prof. Billroth, relates (*Wien. Med. Woch.*, July 30) the following very remarkable case. A Privat-beamte, aged thirty-two, a strong and healthy-looking man, was admitted to the clinic. With the exception of a hard syphilitic ulcer, which showed itself in 1868, and an exanthem which followed it about two years afterwards, he has always remained in good health. He was not subjected to any complete anti-syphilitic treatment. Some years ago he married, and has two healthy children. On July 6, 1876, while walking on even ground, he fell down; and, on being raised, the left femur was found to be broken just below its middle. For six or eight weeks prior to the accident he had complained, after much walking or standing, of dull pains in the bones, especially during the evening, which, however, did not prevent his sleep. The patient felt sure that the limb was already broken when he fell. He was treated at his own house, the cure being completed in about ten weeks, with about three centimetres shortening of the limb. On May 6, 1877, he came to the clinic, having since March been tormented with the same kind of pains, only much more intense, in the right limb as those which had preceded the fracture of the left. Iodide of potassium and baths were prescribed. On July 6 (exactly one year after his former accident), having tripped on getting out of the bath, a fracture occurred at just above the middle of the right femur. He recovered in about the same time, and, when seen in September, there was scarcely one centimetre difference between the limbs, and he was able to walk perfectly when the pains had left him. In February, 1878, however, these returned severely in the limb last broken. Baths and the Haller iodine water were prescribed, and last June he was much better, of very healthy appearance, and able to walk well by aid of a stick. Dr. Nedopil is of opinion that the accidents have arisen from a diseased state of the bone,

due to the syphilis which he contracted about nine years ago.—*Med. Times and Gaz.*, Oct. 5, 1878.

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Sweating in Phthisis.—Dr. Cérenville, Senior Physician of the Lausanne Hospital, states (*Union Méd.*, Sep. 24) that from frequent use of the sulphate of atropia (one milligramme as a dose given in the evening) in the sweating of phthisis, he can corroborate the good opinions of its efficacy published by Drs. Fraentzel and Williamson. He generally finds that the first dose diminishes the sweating, while after the second or third dose it becomes arrested.—*Révue Médicale*, September 28.

Professor Germain Sée prescribes five grammes of tannic acid and one gramme of alcoholic extract to be made into forty pills, of which eight are to be taken daily. Prof. Potain prescribes from six to eight grammes of the phosphate of lime daily. —*Med. Times and Gaz*, Oct. 5, 1878.

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Treatment of Wounds by Salt.—M. Houzé, in a paper (*Rév. Scientifique*, Aug. 31), read at the French Association, stated that he had met with great success in treating wounds with abundant purulent discharge and purulent collections by means of a saturated solution of salt. He attributes its beneficial effects to its antiseptic action and to the density of the solution. If we place some pus and a solution of chloride of sodium in a test-glass, the pus soon appears at the surface of the mixture. M. Cabello, of Madrid, stated that he had employed sea-water in the treatment of atonic ulcers with good effect. M. Rochard, on the other hand, stated that he had found that the little ulcers sometimes forming on the feet of sailors become transformed into chronic sores when the feet are exposed to the action of sea-water, so that men having such ulcers are obliged to be exempted from service. M. Lecadre has often seen sea-water employed with benefit in the treatment of wounds.—*Med. Times and Gaz.*, Oct. 5, 1878.

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The Therapeutical Action of Digitalis.—Prof. Teissier of Lyons, in a communication to the French Association (*Rév. Scientifique*), observed that notwithstanding that so much has been written on the subject, great uncertainty exists as to the employment of this remedy in heart disease. While some reserve its use for mitral lesions, others make it out to be the remedy *par excellence* in affections of the aorta. Under the influence of M. Bouillaud, it used to be regarded as exclusively sedative, while more recently it is said by stimulating the nerves of the heart to increase arterial tension—Prof. Gubler declaring that it is not the "opium," but the "cinchona" of the heart. After a clinical experience of thirty-five years, Prof. Teissier has come to the conclusion that there are few affections of the heart in which it is not a suitable medicine, and that it becomes in turn sedative or stimulant, according to the condition of the heart. He does not regard either hypertrophy or aortic affections as contraindicating its employment; and as to the diseases of the right side of the heart, they can but benefit by a remedy which both increases the *vis a tergo* and increases the circulation. Prof. Gubler observed that digitalis is truly a tonic of the heart, although its tonic action may be only indirect. The cases in which it succeeds best are those where the cardiac disorders are most considerable, the increased energy being accompanied by debility of the organ. Every one is aware that, as regards force, there is a great difference between the impulse of the heart and the arterial pulse, all having seen cases wherein, while the heart beats violently, the pulse remains small and feeble. It is in such cases that tonic action is advantageous, digitalis proving useful when the cardiac action is the dominant feature. The true contraindications are found in the fundamental feebleness of the heart and irregularities of rhythm—what may be termed cardioplegia. Prof. Gubler considers that sphygmographic tracings are highly deceptive, the positions of the instrument with relation to the artery entirely changing their character.—*Med. Times and Gaz.*, Oct. 5, 1878.

Treatment of Whooping-Cough by Tincture of Drosera.—A paper which appeared on June 25th, 1878, in the *Journal de Thérapeutique*, by Dr. Lamare, on the Treatment of Whooping-Cough by the Tincture of Drosera, has excited considerable attention, and the effects obtained by various observers have been different. M. Créquy, in a child of three months, rapidly effected a reduction in the number and violence of the fits of coughing, so that from the end of the fifth day they almost completely disappeared. The same result occurred in another child of three years, recovery being almost complete in about fifteen days. Mr. C. Paul, however, was less fortunate, the remedy appearing to be without action. The plant used is the Drosera rotundifolia. Its digestive properties are well known since Mr. Darwin's observations upon it, and further investigation would be serviceable.—*Lancet*, Aug. 3, 1878.

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Anorexia.—Dr. Fonssagrives recommends (*Union Méd.*, July 9) the following formula:—Bruised Chinese rhubarb, bruised peel of bitter orange, of each four parts, and water 250 parts. This is to be infused cold during three days. Two or three tablespoonfuls are to be taken daily an hour before dinner. If this does not succeed, he prescribes one or two pills an hour before dinner, each containing one centigramme of alcoholic extract of nux vomica, and twenty centigrammes of extract of gentian, continuing them until the appetite is suitably restored.—*Med. Times and Gaz.*, July 20, 1878.

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Cerebral Localization.—M. Gougenheim adds, in an observation recently communicated to the Société Médical des Hôpitaux de Paris, a new observation of cerebral localization; a case of monoplegia of the left leg, following a fall upon the head; there was no loss of sensation. The diagnosis was cortical lesion, localized in the upper extremity of the ascending frontal convolution. The *post-mortem* examination showed a lesion of the ascending frontal convolution, limited to the external surface of paracentral lobe. This corresponds to Ferrier's determination of the psycho-motor centre of the muscles of the lower extremity.—*Brit. Med. Journ.*, May 25, 1878.

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British Medical Association.—The forty-sixth annual meeting of this Association was held at Bath, August 6th, 7th, 8th, and 9th, under the presidency of Dr. R. W. Falconer, of Bath. Drs. L. A. Sayre, of New York; Billroth, of Vienna; Charcot, of Paris; Esmarch, of Nice; Liebreich, of Berlin; Ludwig, of Leipsic; and Pasteur, of Paris; were elected honorary members. At this meeting final action was taken on the addition to the Articles of Association which was proposed last year, viz., "That no female be eligible as a member of the Association." After full discussion the following amendment was passed by a large majority, "That no female shall be eligible for election as a member of the Association."

At the Public Dinner of the Association Dr. Marion Sims, as a delegate from the American Medical Association, responded to the toast of "The Guests."

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Quinoidine as a Febrifuge.—At a late meeting of the Académie de Médecine de Paris, M. Burdel, of Vierzon, read a paper on the Febrifuge Action of Quinoidine in the treatment of Telluric Fevers. M. Burdel remarked that this resin-alkaloid possessed distinct febrifugal properties, and that it is closely analogous in its action to quinine. He finds that, like quinine, it may be freely administered, and with good results, in telluric and benignant intermittent fevers. But it is in quartan fevers and in telluric cachexia that it exerts a specially well-marked action; in these it is even superior to quinine. Like all analogous febrifuge remedies, quinoidine should be given for four or five weeks consecutively, in successive but properly timed doses. Its relatively low price is a great point in its favour. It cannot, M. Burdel thinks, supplant quinine in the treatment of intermittent fevers of an acute type, but it may even in these be a useful auxiliary; whilst in chronic cases he believes that it is actually superior to quinine.—*Lancet*, Aug. 21, 1878.

Colour-Blindness.—By a recent order of the managing directors of the German railways, their officials have been subjected to trying tests, with the view of ascertaining their ability to distinguish clearly between red and green lights; and the result has been that a very considerable number of men have had to be removed from their posts, and provided with other employment, in consequence of colour-blindness.—*Med. Times and Gaz.*, October 12, 1878.

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Venesection as an Anti-Hemorrhagic.—Professor CHAUFFARD is of opinion (*Abeille Médicale*) that at the present time venesection is too much neglected, and especially in cases where it is desirable to open up another channel for blood which tends to become effused at the surface of an organ. He pointed out a case of hæmoptysis at the Necker, occurring in a robust young man who was almost plethoric, a stone-cutter by trade, and therefore of an occupation dangerous to the pulmonary organs. A very abundant hæmoptysis had appeared suddenly three days before his admission, and still continued. Prof. Chauffard having ascertained that no serious lesion existed, ordered venesection to the extent of 500 grammes, and the cure was immediate and complete. This is the reverse of what is met with when a normal hemorrhage which is suppressed gives rise to another in its place. It is not only an accidental hemorrhage which may be thus arrested, but also the hemorrhagic molimen when it becomes dangerous. Thus one of the most important applications of venesection in practice is for the prevention of catamenial congestions persisting after impregnation, and leading to the detachment of the germ—a cause of sterility which is frequently misunderstood. A case in point is that of a lady who, during a period of ten years, repaired to every resort reputed as useful for the prevention of sterility. She was a stout and plethoric person, with very abundant menstruation, which appeared at regular periods. In neither her nor in her husband was there any cause preventive of impregnation. This had probably taken place, but had been rendered invalid by reason of the abundant periodical discharge which had continued. The day before the expected period a small quantity of blood was taken, and then again the next day; and at the end of nine months the lady had her first child, which was followed by others. This cause of sterility, especially in persons of generous blood, is by no means rare.—*Med. Times and Gazette*, October 12, 1878, from *Presse Belge*, Sept. 29.

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Tincture of Myrrh in Pertussis.—Another remedy for whooping-cough, and, like all its predecessors, simple and efficacious, is brought forward by Dr. Campardon, who, on the strength of several cases treated with it, strongly recommends the tincture of myrrh in doses of from three to ten drops, given several times a day in vinum cinchonæ, although this is not an indispensable vehicle. It in nowise militates against the appropriate treatment of any inflammatory complication that may arise.—*Med. Times and Gaz.*, Oct. 12, 1878, from *Bull. de Thérap.*, Sept. 15.

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OBITUARY RECORD.—Died on the 14th of September, in the seventy-fourth year of his age, JOHN HILTON, Surgeon-extraordinary to H. M. the Queen, President of the Royal College of Surgeons, and Consulting Surgeon to Guy's Hospital.

—— At Barnes, Surrey, on the 21st of September, ROBERT WILLIS, M.D., Ed., at the age of eighty years.

Dr. Willis was for many years librarian of the Royal College of Surgeons, and was the editor of the Sydenham Society's edition of the works of Harvey and the author of the life of Harvey appended thereto.

—— At Bex, Switzerland, on August 1st, aged 65, HERMANN LEBERT, formerly Professor of Clinical Medicine at Zurich. Prof. Lebert is best known in this country by his great work on Pathological Anatomy, the first part of which was published in 1854, and was not completed until 1862.

—— At Toulouse, aged 79, ACHILLE FOVILLE, the distinguished French Chemist and author of the *Traité de l'Anatomie de Système Nerveux Cérébro-spinal.*

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